

WHAT IS CLAIMED IS:

1. A method of imaging electronic paper, the method comprising the steps of:

providing a focused light source structured to emit a light beam;

5 positioning a back plane electrode layer in front of the focused light source;

positioning a photoconductive layer between the back plane electrode layer and the focused light source;

positioning an electrostatic display cell layer between the photoconductive layer and the focused light source;

10 positioning a front plane electrode layer between the electrostatic display cell layer and the focused light source, the front plane electrode layer being transparent to the light beam;

generating an electrical potential between the front plane electrode layer and the back plane electrode layer; and

15 emitting the light beam from the focused light source while the electrical potential between the front plane electrode layer and the back plane electrode layer is being generated.

2. A method as defined in claim 1, further comprising the step of stepping the focused light source across the electronic paper.

3. A method as defined in claim 1, further comprising the step of stepping advancing the electronic paper line by line.

4. A method as defined in claim 1, wherein the step of providing a focused light source comprises the step of providing a laser device.

5. A method as defined in claim 1, wherein the step of providing a focused light source comprises the step of providing an invisible ray source.

6. A method as defined in claim 1, wherein the step of providing a focused light source comprises the step of providing a light source containing infrared light.

7. A method as defined in claim 1, wherein the step of providing a focused light source comprises the step of providing a light source containing ultraviolet light.

8. A method as defined in claim 1, wherein the step of positioning a back plane electrode layer comprises the step of positioning a white back plane electrode layer.

9. A method as defined in claim 1, wherein the step of positioning a photoconductive layer comprises the step of positioning a selenium layer.

5 10. A method as defined in claim 1, wherein the step of positioning a photoconductive layer comprises the step of positioning a layer of photoconductive silicon.

10 11. A method as defined in claim 1, wherein the step of positioning a photoconductive layer comprises the step of positioning a layer of cadmium sulfide.

15 12. A method as defined in claim 1, wherein the step of positioning a photoconductive layer comprises the step of positioning an organic photoconductor.

20 13. A method as defined in claim 1, wherein the step of positioning an electrostatic display cell layer comprises the step of positioning a layer of translucent enclosures, each translucent enclosure containing a fluid and an electrically charged material.

14. A method as defined in claim 1, wherein the step of positioning an electrostatic display cell layer comprises the step of positioning a layer of spheres, each sphere being captured in a translucent cell such that

each sphere is freely rotatable within the translucent cell, each sphere having one color on the front of the sphere and another color on the back of the sphere, each sphere being electrostatically charged with a charge of one polarity on the front of the sphere and a charge of another polarity on the back of the sphere.

15. A method as defined in claim 1, wherein the step of positioning a front plane electrode layer comprises the step of positioning a front plane electrode layer which is transparent to visible light.

16. A method of imaging electronic paper, the method comprising the steps of:

providing a focused light source structured to emit a light beam;

positioning a back plane electrode layer in front of the focused light source;

positioning an electrostatic display cell layer between the back plane electrode layer and the focused light source;

positioning a photoconductive layer between the electrostatic display cell layer and the focused light source;

positioning a front plane electrode layer between the photoconductive layer and the focused light source, the front plane electrode layer being transparent to the light beam;

generating an electrical potential between the front plane electrode layer and the back plane electrode layer; and

emitting the light beam from the focused light source while the electrical potential between the front plane electrode layer and the back plane electrode layer is being generated.

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17. A method as defined in claim 16, further comprising the step of stepping the focused light source across the electronic paper.

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22. A method as defined in claim 16, wherein the step of providing a focused light source comprises the step of providing an ultraviolet source.

5 23. A method as defined in claim 16, wherein the step of positioning a back plane electrode layer comprises the step of positioning a white back plane electrode layer.

10 24. A method as defined in claim 16, wherein the step of positioning a photoconductive layer comprises the step of positioning a selenium layer.

15 25. A method as defined in claim 16, wherein the step of positioning a photoconductive layer comprises the step of positioning a layer of photoconductive silicon.

20 26. A method as defined in claim 16, wherein the step of positioning a photoconductive layer comprises the step of positioning a layer of cadmium sulfide.

27. A method as defined in claim 16, wherein the step of positioning a photoconductive layer comprises the step of positioning an organic photoconductor.

28. A method as defined in claim 16, wherein the step of positioning an electrostatic display cell layer comprises the step of positioning a layer of translucent enclosures, each translucent enclosure containing a fluid and an electrically charged material.

29. A method as defined in claim 16, wherein the step of positioning an electrostatic display cell layer comprises the step of positioning a layer of spheres, each sphere being captured in a translucent cell such that each sphere is freely rotatable within the translucent cell, each sphere having one color on the front of the sphere and another color on the back of the sphere, each sphere being electrostatically charged with a charge of one polarity on the front of the sphere and a charge of another polarity on the back of the sphere.

30. A method as defined in claim 16, wherein the step of positioning a front plane electrode layer comprises the step of positioning a front plane electrode layer which is transparent to visible light.

31. An apparatus for imaging electronic paper, the apparatus comprising:

a switchable voltage source;

a front plane electrode electrically connected to the switchable voltage source;

a back plane electrode electrically connected to the switchable voltage source;

a focused light source positioned to emit a light on each of a plurality of selected locations of the front plane electrode; and

5 a controller operatively coupled to the switchable voltage source and the focused light source, the controller causing the switchable voltage source to produce an electrical potential between the front plane electrode layer and the back plane electrode layer, the controller causing the focused light source to emit the light beam from the focused light source while the
10 electrical potential between the front plane electrode layer and the back plane electrode layer is being generated.

32. An apparatus as defined in claim 31, wherein the focused light source comprises a laser device.

15 33. An apparatus as defined in claim 31, wherein the focused light source comprises an infrared source.

34. An apparatus as defined in claim 31, wherein the focused light source comprises an ultraviolet source.

20 35. An apparatus as defined in claim 31, wherein the focused light source comprises a light emitting diode array

36. An apparatus as defined in claim 31, wherein the focused light source comprises a light emitting polymer array

37. An apparatus as defined in claim 31, wherein the focused
5 light source comprises a modulated light source.

38. An apparatus as defined in claim 37, wherein the modulated light source comprises a liquid crystal display.

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